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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,532	07/06/2001	Anthony J. Christopher	K0480/7000	3942

23628 7590 09/23/2004

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EXAMINER

KOCH, GEORGE R

ART UNIT	PAPER NUMBER
1734	

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/900,532	CHRISTOPHER ET AL.	
	Examiner	Art Unit	
	George R. Koch III	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 and 68 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18-31 and 68 is/are allowed.
- 6) ☒ Claim(s) 1-9, 12, 13 and 14-16 is/are rejected.
- 7) ☒ Claim(s) 10, 11 and 17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. <u>20040622</u> . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-9, 12, and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art in view of Uehara (US 4,916,811) and optionally Csipkes (US Patent 6,122,936).

The admitted prior art (page 1 of the specification) discloses that it is conventionally known to process an optical fiber to form a pigtail by performing several manufacturing steps. First, the optical fiber is cut to a desired length from a spool and the fiber is wound into a more compact configuration. Then several steps are performed on the coiled fiber, such as 1) stripping the protective coating off at least one end of the fiber, 2) cleaning the end of the fiber, 3) cleaving the end of the fiber to obtain a high quality optical surface, and 4) attaching a ferrule to the end of the fiber.

However, the admitted prior art does not disclose utilizing an automated fiber preparation apparatus to perform these method steps. The admitted prior art has disclosed that these processes are performed manually or with semi-automated tools.

Uehara discloses that manual operations have known disadvantages, such as 1) inability to handle long lengths of cable, and 2) difficulty making measurements (see

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column 1, lines 36-42), and proposes an automated fiber preparation apparatus in order to overcome these disadvantages.

Uehara discloses an automated fiber preparation apparatus for an optical fiber comprising a transporter (item 22 - see Figure 4) having upstream and downstream end, and being constructed and arranged to automatically index a tray (item 21) , in a direction from the upstream end toward the downstream end in response to a control signal, a fiber preparation module such as a strip tool (any of items 11-19, such as stripper 15, adhesive applying unit 17, ferrule mounting unit 18, etc) including at least one automated fiber preparation tool positioned between the upstream end and the downstream end thereof (see Figure 4 which shows this orientation), the at least one fiber preparation tool being constructed and arranged to automatically process an end portion of the optical fiber in response to a control signal (which can be the signal to operate the apparatus). The control signal, the location from which is undefined in the claims, is taken to be merely an activation signal. In any event, Csipkes discloses that it is known to utilize a control system sending out activation signals (best seen in Figure 2 of Csipkes). Furthermore, Uehara discloses that the apparatus can simultaneously index a plurality of trays, and that each of the trays holds an optical fiber (see Figures 4 and 8). As stated above, Uehara discloses that manual operations have known disadvantages. Uehara also discloses that an automated fiber preparation apparatus overcomes these disadvantages (see column 1, lines 43-55), i.e., would result in better efficiency and accuracy, as well as better cable measurements. Therefore, it would have been obvious to have utilized the automated fiber processing apparatus of Uehara

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in order to automate the process of the admitted prior art and achieve the benefits of improved efficiency and accuracy, as well as better measurements.

The admitted prior art discloses that one would cleave the end of the fiber in order to obtain a high quality optical surface. Csipkes discloses a conventional automatic cleave tool for use in fiber preparation. Csipkes also discloses that the cleave tool is positioned between the strip tool and the downstream end of the transporter. As noted above in the admitted prior art, cleave tools are specifically used to obtain a high quality optical surface, which inherently improves the functionality of the fiber. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a cleave tool in order to ensure that the fiber possessed a high quality optical surface, thus improving the optical fiber's functionality.

Furthermore, as to claim 12, the transporter of Uehara as incorporated is configured to index the tray in a linear direction (see Figure 4).

As to claim 3 and 4, the admitted art does not disclose cleaning tool, or where the cleaning tool is located relative to the strip tool and the transporter.

The admitted prior art, however, does disclose that the fiber ends are cleaned during a ferrule attachment process. One would immediately appreciate that a clean fiber end eliminates particles that can interfere with fiber functionality. Furthermore, Csipkes discloses a conventional cleaning tool for use in fiber preparation. Csipkes also discloses that the cleaning tool is positioned between the strip tool and the downstream end of the transporter. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a cleaning tool

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positioned between the strip tool the downstream end of the transporter in order to eliminate foreign particles from the fiber and improve optical quality as suggest by the process of the admitted prior art.

As to claim 5, Uehara as incorporated discloses a spooling tool positioned between the upstream end of the transporter (item 13, the upstream end of the transporter is defined as the start of the transfer unit 14 plus conveyor 22) and the downstream end of the transporter, the spooling tool being constructed and arranged to automatically wind, in response to a control single (taken to be the apparatus activation) the optical fiber into a coiled fiber that includes at least one coil of fiber with the end portion extending from at least one coil (see Figure 8, which shows at least one end extending past the coil).

Further, as to claim 6, Uehara as incorporated discloses placing the coil into a tray.

As to claim 7, the positioning of coiling tool 13 and transfer tool 14 which places the coil onto tray 21 in Uehara as incorporated is considered between the upstream end of the transporter and the strip tool.

As to claim 8, Uehara as incorporated discloses a ferrule attachment tool (item 18) positioned between the upstream and downstream end of the transporter, the ferrule attachment tool being constructed and arranged to automatically attach a ferrule to the end portion of the optical fiber in response to the control signal.

Furthermore, as to claim 9, the admitted prior art presents the steps in the following order - stripping, cleaning, cleaving, and ferrule attachment. One in the art

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would immediately recognize that the steps occur in the order presented because the cleaning step cleans the stripping, and that the cleaving step needs to occur before ferrule attachment (at which point no further work can be performed on the fiber end). The admitted prior art discloses that the cleaving step results in a high quality optical surface. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a cleaving step, and thus a cleave tool prior to the attachment step, and thus, an attachment tool and thus have the ferrule attachment module situated between the cleave tool and the downstream end of the transporter in order to ensure that the fiber of high optical quality and is adequately prepared for the ferrule attachment.

As to claim 14, Uehara discloses a fiber placement tool, called the cable end positioning unit. See column 8, line 35 to column 10, line 13). Uehara discloses that the fiber placement unit serves to place and keep the ends of the cable loop in correct positioning for easy processing.

As to claim 15, Uehara discloses a tray in combination with the apparatus.

As to claim 16, Uehara discloses that the tray is constructed and arranged to retain at least one end portion of the optical fiber extending outwardly beyond the outer perimeter.

3. Claims 1-9, 12 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara in view of the admitted prior art (page one of the specification) and Csipkes (US Patent 6,122,936).

As to claim 1 and 12, Uehara discloses an automated fiber preparation apparatus for an optical fiber comprising a transporter (item 22 - see Figure 4) having upstream and downstream end, and being constructed and arranged to automatically index a tray (item 21) , in a direction from the upstream end toward the downstream end in response to a control signal, a fiber preparation module such as a strip tool (any of items 11-19, such as stripper 15, adhesive applying unit 17, ferrule mounting unit 18, etc) including at least one automated fiber preparation tool positioned between the upstream end and the downstream end thereof (see Figure 4 which shows this orientation), the at least one fiber preparation tool being constructed and arranged to automatically process an end portion of the optical fiber in response to a control signal (which can be the signal to operate the apparatus). The control signal, the location from which is undefined in the claims, is taken to be merely an activation signal. In any event, Csipkes discloses that it is known to utilize a control system sending out activation signals (best seen in Figure 2 of Csipkes). Furthermore, Uehara discloses that the apparatus can simultaneously index a plurality of trays, and that each of the trays holds an optical fiber (see Figures 4 and 8).

As to claim 1 and 2, Uehara does not discloses a cleave tool for use in fiber preparation or where the cleaving tool is located relative to the strip tool and the transporter, nor suggest any reason for including a cleave tool.

The admitted prior art discloses that one would cleave the end of the fiber in order to obtain a high quality optical surface. Furthermore, Csipkes discloses a conventional automatic cleave tool for use in fiber preparation. Csipkes also discloses

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that the cleave tool is positioned between the strip tool and the downstream end of the transporter. As noted above in the admitted prior art, cleave tools are specifically used to obtain a high quality optical surface, which inherently improves the functionality of the fiber. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include a cleave tool in order to ensure that the fiber possessed a high quality optical surface, thus improving the optical fiber's functionality.

Furthermore, as to claim 12, the transporter of Uehara is configured to index the tray in a linear direction (see Figure 4).

As to claim 3 and 4, Uehara does not disclose cleaning tool, or where the cleaning tool is located relative to the strip tool and the transporter.

However, Csipkes discloses a cleaning tool for use in fiber preparation. Csipkes also discloses that the cleaning tool is positioned between the strip tool and the downstream end of the transporter. One of ordinary skill in the art would appreciate that a cleaning tool would remove foreign particles from the fiber, especially foreign particles created by the strip tool, and improve the optical qualities. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a cleaning tool positioned between the strip tool the downstream end of the transporter in order to eliminate foreign particles from the fiber and improve optical quality.

As to claim 5, Uehara discloses a spooling tool positioned between the upstream end of the transporter (item 13, the upstream end of the transporter is defined as the start of the transfer unit 14 plus conveyor 22) and the downstream end of the transporter, the spooling tool being constructed and arranged to automatically wind, in

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response to a control single (taken to be the apparatus activation) the optical fiber into a coiled fiber that includes at least one coil of fiber with the end portion extending from at least one coil (see Figure 8, which shows at least one end extending past the coil).

Further, as to claim 6, Uehara discloses placing the coil into a tray.

As to claim 7, the positioning of coiling tool 13 and transfer tool 14 which places the coil onto tray 21 in Uehara is considered between the upstream end of the transporter and the strip tool.

As to claim 8, Uehara discloses a ferrule attachment tool (item 18) positioned between the upstream and downstream end of the transporter, the ferrule attachment tool being constructed and arranged to automatically attach a ferrule to the end portion of the optical fiber in response to the control signal.

Furthermore, as to claim 9, Uehara is silent as to the position of the fiber attachment tool relative to the cleave tool (since Uehara does not suggest a cleave tool.) However, the admitted prior art presents the steps in the following order - stripping, cleaning, cleaving, and ferrule attachment. One in the art would immediately recognize that the steps occur in the order presented because the cleaning step cleans the stripping, and that the cleaving step needs to occur before ferrule attachment (at which point no further work can be performed on the fiber end). The admitted prior art discloses that the cleaving step results in a high quality optical surface. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized a cleaving step, and thus a cleave tool prior to the attachment step, and thus, an attachment tool and thus have the ferrule attachment module situated between

the cleave tool and the downstream end of the transporter in order to ensure that the fiber of high optical quality and is adequately prepared for the ferrule attachment.

As to claim 14, Uehara discloses a fiber placement tool, called the cable end positioning unit. See column 8, line 35 to column 10, line 13). Uehara discloses that the fiber placement unit serves to place and keep the ends of the cable loop in correct positioning for easy processing.

As to claim 15, Uehara discloses a tray in combination with the apparatus.

As to claim 16, Uehara discloses that the tray is constructed and arranged to retain at least one end portion of the optical fiber extending outwardly beyond the outer perimeter.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Uehara, the admitted prior art, and Csipkes as applied to claim 1 above, or alternatively of Admitted prior art, Uehara and Csipkes as applied to claim 1 above, and further in view of Bloom (US 6,003,341).

As to claim 13, none of the references do not disclose using a walking beam.

Bloom discloses a walking beam (item 160, Figure 22). Bloom discloses that the walking beam, called a support bar, holds the structures and trays in a precise position and in a predetermined and known position (column 22, lines 40-54). One ordinary skill in the art would appreciate that this capability of precisely positioning the trays and the holding structures would improve functioning and positioning of the work modules or work apparatus relative to the optical fibers. Therefore, it would have been obvious to

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one of ordinary skill in the art at the time of the invention to have utilized such a walking beam in order to precisely position the trays for the work apparatus.

Allowable Subject Matter

5. Claims 18-26, 27-31 and 68 are allowed.

6. The following is an examiner's statement of reasons for allowance: With regard to claims 18-26, while the prior art of record does suggest automated fiber preparation apparatuses with trays including a fiber receptacle disposed between opposing ends thereof, a transporter having an upstream end and a downstream end, the transporter being constructed and arranged to automatically index the tray in a direction from the upstream end toward the downstream end in response to a control signal, and fiber preparation modules, the prior art of record does not suggest the two critical limitations in combination of 1) the fiber receptacle being constructed and arranged to contain the optical fiber therein with opposing end portions of the optical fiber extending toward the opposing ends of the tray, and 2) that the fiber preparation module includes at least one pair of automated fiber preparation tools positioned on opposite sides of the transporter between the upstream end and the downstream end thereof, the at least one pair of fiber preparation tools being constructed and arranged to automatically process the opposing end portions of the optical fiber in response to a control signal.

With regard to claims 27-31 and 68, the prior art of record does disclose all of the elements of the claims (for example, Uehara, the admitted prior art, and Csipkes suggest the combination of the transporter and the fiber preparation module, and

verwey and Brannen suggest load modules and unload modules stacking). However, as noted on pages 21-22 of the response filed 6/29/2004, there is no motivation in the prior art of record for combining these elements.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

7. Claim 10, 11, and 17 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claims 10 and 11, the prior art of record does disclose all of the elements of the claims (for example, Uehara, the admitted prior art, and Csipkes suggest the combination of the transporter and the fiber preparation module, and verwey and Brannen suggest load modules and unload modules stacking). However, as noted on pages 21-22 of the response filed 6/29/2004, there is no motivation in the prior art of record for combining these elements.

With regard to claim 17, the prior art of record does not suggest the critical limitation in combination with the limitations of claim 16 wherein 1) the tray being

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constructed and arranged to retain opposite ends of the optical fiber outwardly beyond the perimeter at opposite ends of the tray.

Response to Arguments

9. Applicant's arguments with respect to claims 1-9, 12, and 14-16 have been considered but are moot in view of the new ground(s) of rejection that address the issue of lack of motivation for incorporating a cleave tool. It is noted that the admitted prior art sets forth motivation for including a cleave tool (i.e., higher optical quality on the fiber surface), providing support for the use of an automated cleave tool as in Csipkes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-866-377-8642 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "GR Koch III", with a stylized flourish at the end.

George R. Koch III
Patent Examiner
Art Unit 1734

George R. Koch III
9/16/04